

Astronomy Ranking Task: Dark Matter

Exercise #2

Description: Imagine a solar system in the Milky Way Galaxy that is roughly 20,000 lightyears away from the center. The planetary family orbits a single star. The table below lists the planets in this solar system and the lengths of their semimajor axes.

Planet	Semimajor Axis (AU)
P	2.1
Q	0.5
R	37
S	49
T	15
U	4.0

A. Ranking instructions: Rank the lengths of the planets' orbital periods.

Ranking Order: Shortest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ Longest

Or, all the planets have approximately the same orbital period. _____ (indicate with a check mark)

Or, there is not enough information to determine the lengths of the orbital periods. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:

B. Ranking instructions: Rank the orbital speeds of the planets.

Ranking Order: Slowest 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ Fastest

Or, all the planets orbit with approximately the same speed. _____ (indicate with a check mark)

Or, there is not enough information to determine the orbital speeds. _____ (indicate with a check mark)

Carefully explain your reasoning for ranking this way:
